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10/608,086	06/30/2003	William Earl Russell II	24GA5998-7	8107

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EXAMINER

PALABRICA, RICARDO J

ART UNIT PAPER NUMBER

3641

DATE MAILED: 11/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/608,086

Applicant(s)

RUSSELL ET AL.

Examiner

Rick Palabrica

Art Unit

3641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 September 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 31-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 31-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Applicant's 9/13/04 Amendment, which directly amended claim 1 and traversed the rejection of claims in the 6/11/04 Office Action, is acknowledged.

### ***Response to Arguments***

2. Applicant's arguments filed with said Amendment have been fully considered but they are not persuasive.

Most of the 35 CFR 112, 1<sup>st</sup> and 2<sup>nd</sup> paragraph rejections being traversed by the Applicant have already been extensively discussed in a 7/7/04 Interview with the previous Attorney, Mr. Mathew Lattig. The same reasonings that were set forth during that interview are reiterated below, for the benefit of the Applicant.

The Applicant alleges that the instant application has very similar figures and disclosure to Application No. 09/475,309 that was examined and issued as Patent No. 6,748,348 by the USPTO Art Unit 2123. Applicant further suggests that the Examiner consider transferring the application to the other Art Unit. The Examiner disagrees.

First, the issues raised by the Examiner, who is in Art Unit 3641, is different from and have not been acted upon by the Examiner in Art Unit 2123. Each patent application (and its accompanying claims) is treated on their own merits. An Examiner is not bound by the decision of another Examiner of a different application, even though the two applications may be similar or related.

Second, there are profound differences in the level of comprehensiveness in the disclosures of the two allegedly similar applications. For example, the instant application

Art Unit: 3641

presents nothing more than a “black box” (with no description of internals) in Fig. 6B for the “Generation of Polynomial Response” (element 614). This polynomial response is required to perform the step of generating transfer functions in claim 40 of the application. On the other hand, a similar “Polynomial Coefficient Development Module” (element 303) in Fig. 3 of Application 90/475,309 has its internals described in detail in Figs. 6 and 7, giving a step-by-step algorithm for developing the coefficient.

Third, for so long as the claimed invention is directed to operation of a nuclear reactor, the application will remain within class 376 and be examined in the Examiner’s Art Unit. For the claimed invention to potentially qualify for examination under a different class and another Art Unit, the Applicant may wish to file a Continuation-in-Part Application that expands the use of the claimed method for optimization of the operation of other power plants (e.g., chemical plants) and directing the claims thereto.

3. The specific issues relating to the traverse of the claim rejections in the previous Office Action will now be addressed.

a. 35 U.S.C. 112, first paragraph issues

- Claim 31

Applicant alleges that there are no “internals” to be shown for the steps shown as blocks in Fig. 6B. The Examiner disagrees because Applicant himself admits that his application has a similar disclosure as application 90/475,309, and the latter provides extensive description of the internals, for example, of the Polynomial block (see section 2 above).

Art Unit: 3641

As to the issue of the target of optimization, this pertains to the lack of support on what factor(s) the independent control variables are being optimized to, e.g., is it cost, safety, efficiency or what. There must be a goal or reference value to know, e.g., when to terminate the optimization process because the goal has been achieved.

As to the issue of performing optimization process based on state point data alone, this pertains to the lack of disclosure of the target of optimization discussed above. One cannot optimize a parameter (e.g., set point data) if the target or goal of the optimization is not identified.

Applicant alleges that the optimization processes are already well known, that there are comprehensive lists of control variables and dependent variables available, and that there are numerous references in the submitted IDS to provide teachings for the process. Given the Applicant's admission of a plurality of available teachings in the art, the issue is the lack of criteria for selecting an appropriate process or set of variables, and for modification of what has been selected to fit the Applicant's situation.

As to the relationship between the preamble and body of the claim, the issue remains despite the modification of the preamble. There is no support as to how and in what manner the optimized value obtained by performing the optimization process (recited in the body) is applied to determine an updated independent control variable (recited in the amended preamble). In other words, how does one relate the optimized values in the body of the claim to the updated variable values in the preamble?

Art Unit: 3641

- Claim 32

The issue relates to what has been discussed above, i.e., even if the optimization process is well known and described in a plurality of references, as the Applicant alleges, how does one select and modify a particular process or teaching to fit the Applicant's situation.

- Claims 33 and 34

Applicant alleges that the claim language, "previously received state-point data" refers to "state-point data used in the previous optimization." The above-cited feature, i.e., "previous optimization", upon which the applicant relies, is not recited in rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Additionally, if said unrecited feature is considered by the applicant to be critical to his invention, then such omission would amount to a gap between the essential elements. In this case, the claim(s) would be incomplete and would be rejected under 35 U.S.C. 112, second paragraph. See MPEP § 2172.01.

- Claims 37, 38 and 39

The issue is as follows: given the large amount of data generated by the multiple iterative process itself comprising manifold steps, there are no criteria for selection of the set of data to display. This step is an important element of the claimed invention as evidenced by the Applicant devoting three separate dependent claims for this aspect. If

Art Unit: 3641

Applicant believes otherwise that this step is not important then the claims should probably be deleted.

- Claims 40 and 41

See Examiner's response under claim 31.

- b. 35 U.S.C. 112, second paragraph issues

See Examiner's response in section 3.a. above.

- c. Art rejection Issues

- Claim 31

Applicant traversed Takeuchi et al. on the ground that their invention does not perform an optimization process. Applicant further alleges that Takeuchi et al. do not disclose or suggest "performing an optimization process on one of a computer and computer network based on the received state-point data to generate one or more optimized independent control variable values." The Examiner disagrees.

Applicant discloses in his specification that the claimed invention generally concerns nuclear reactor operations optimization (see paragraph 0001). Part of optimization process relates to making changes to the operational strategy for a more economically efficient reactor performance (see paragraph 0028).

Takeuchi et al. disclose that their invention provides an expert system to aid in the operation of a complex industrial plant such as a nuclear reactor (see col. 1, lines 40+). They further state that their expert system is designed to predict the likelihood of

Art Unit: 3641

future events (e.g., potential abnormal conditions) based upon current plant condition data (see col. 1, lines 43+). Clearly, Takeuchi et al.'s expert system provides some optimization of reactor operation because it ensures that the plant provides information, e.g., to an operator to maintain the plant within specified limits and avoid costly recovery from abnormal conditions.

As to the computer for optimization, Takeuchi et al.'s expert system is computer-based. As to the optimized independent control variable values, as stated in the previous Office Action, they read on such parameters as pressurizer pressure, etc.

Applicant traversed Musick on the ground that "no element, process, etc. within Musick performs an optimization process." The Examiner disagrees.

Musick teaches a combination of a Core Protection Calculator and Core Operating Limit Supervisory System to protect the nuclear reactor from design limit violations both in steady state operation and during transients (see col. 23, lines 5+). Thus, Musick's system performs some optimization to ensure that the operations stay within design limits. Their system is computer based. As to the optimized independent control variables, as stated again in the previous Office Action, this reads on flow rate, control element position, etc.

- Claims 32-39 and 40-41

Applicant's arguments have no basis because of the rebuttals provided above for claim 31.



***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 31-41 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The reasons are the same as those set forth in Section 1 of the 6/11/04 Office Action, as further clarified in the above Examiner's response to Applicant's arguments.

5. Claims 31-41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are vague and indefinite, and their metes and bounds cannot be determined for the reasons given in section 1 above.

The reasons are the same as those set forth in Section 2 of the 6/11/04 Office Action, as further clarified in the above Examiner's response to Applicant's arguments.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 31-39 are rejected under 35 U.S.C. 102(b) as being anticipated by either one of Takeuchi et al. (U.S. 5,009,833) or Musick (U.S. 4,080,251).

The reasons are the same as those set forth in Section 3 of the 6/11/04 Office Action, as further clarified in the above Examiner's response to Applicant's arguments.

7. Claims 40 and 41 are rejected under 35 U.S.C. 102(b) as being anticipated by either one of Takeuchi et al.

The reasons are the same as those set forth in Section 4 of the 6/11/04 Office Action, as further clarified in the above Examiner's response to Applicant's arguments.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 3641

8. Claims 40 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Musick in view of Takeuchi et al. Musick discloses the applicant's claims except for the use of simulated plant data.

The reasons are the same as those set forth in Section 5 of the 6/11/04 Office Action, as further clarified in the above Examiner's response to Applicant's arguments.

### ***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 703-306-5756. The examiner can normally be reached on 6:30-5:00, Mon-Thurs..

Art Unit: 3641

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Carone can be reached on 703-306-4198. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RJP  
November 4, 2004

  
MICHAEL J. CARONE  
SUPERVISORY PATENT EXAMINER